

## Future Combat Systems

**F**uture Combat Systems (FCSs) are a family of advanced, networked air and ground maneuver, maneuver support, and maneuver sustainment systems that include both manned and unmanned platforms. FCSs are connected via an advanced network architecture that will enable levels of situational awareness, understanding, and synchronized operations heretofore unachievable. The Army expects FCS-equipped units of action (UA) to balance deployability and sustainability with responsiveness, lethality, survivability, agility, and versatility characteristics.

FCS is the core building block of the Army's Future Force. This force will include Combined Arms Battalions, a Non-Line-of-Sight (NLOS) Cannon Battalion, an aviation squadron that includes the Comanche Helicopter, and a Forward Support Battalion. UAs will be the Army's tactical warfighting echelons, comprised of echelons at brigade and below that will fight tactical engagements and win battles. Although optimized for offensive operations, the FCS-equipped UA will have the ability to execute full spectrum operations.

One of FCS's transformational objectives is to significantly improve the deployability of the Army without sacrificing lethality or survivability. Accordingly, the FCS family-of-systems maximum essential combat configuration weight will be 19 tons. This facilitates both rapid strategic (inter-theater), multi-modal (air, land, and sea) deployment and operational (intra-theater) maneuver by assets similar to C-130 profile aircraft.

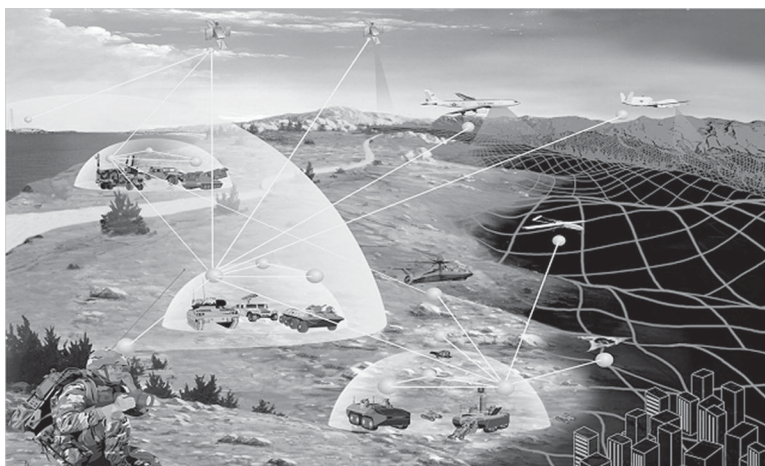
FCS Block I consists of fifteen FCS-equipped UAs, which will be fielded between 2010 and 2020. FCS will replace the majority of the combat vehicles in the Army's current inventory, including main battle tanks, infantry fighting vehicles, howitzers, and mortars.

FCSs include eight manned ground vehicles; four classes of unmanned aerial vehicles organic to platoon, company, battalion, and UA echelons; three classes of unmanned ground vehicles, the Armed Robotic Vehicle, the Multifunctional Utility/Logistics and Equipment Vehicle, and the Small Manpackable Unmanned Ground Vehicle; two unattended munitions- the Intelligent Munitions System and the NLOS-Launch System; and unattended ground sensors.

### TEST & EVALUATION ACTIVITY

DOT&E approved the Test and Evaluation Master Plan on April 25, 2003, and will update it prior to the Defense Acquisition Board Review in November 2004. FCS platforms will be tested and evaluated individually, while concurrently being integrated into a larger system-of-systems (SoS) test and evaluation plan. SoS testing will begin early in the System Design and Demonstration phase with system models connected to a SoS Integration Laboratory (SOSIL). SOSIL will include a software system virtual test framework that provides a wrap-around synthetic environment to immerse these models into a simulated UA combat-like situation. The test program follows using live components, maturing designs, emulators, and finally, use of full-up prototypes. The FCS Block I development schedule calls for a series of limited user tests beginning in FY07 culminating in an IOT&E in FY12.

FCS LFT&E will be complete before the full-rate production decision, now planned for mid-FY14.



*Future Combat Systems is the core building block of the Army's Future Force. This force will include Combined Arms Battalions, a Non-Line-of-Sight Cannon Battalion, an aviation squadron that includes the Comanche Helicopter, and a Forward Support Battalion.*

# ARMY PROGRAMS

## TEST & EVALUATION ASSESSMENT

A program of this magnitude, timeline, and payoff does not come without technical or programmatic risks. The Army's plan is to organize, train, test, and equip a mission-capable FCS by FY12. As such, the development of a family of highly complex vehicles and the sophisticated command and control network associated with these platforms will be a challenge given the current schedule.

In particular, the Army's FCS concept rests upon a network of sensors, platforms, and command nodes linked by reliable high-bandwidth and high-speed communications – all capabilities that do not yet exist. In addition, advanced modeling and simulation (M&S) is expected to support both the execution of live operational testing and FCS ballistic survivability evaluations. The current ballistic M&S is deficient in several areas, namely structural response of composite structures, ballistic shock, blast and mine damage, characterization of behind-armor debris, and quantification of component vulnerability to such debris. In order to mitigate these known deficiencies, sufficient resources will have to be set aside in order for M&S to be an effective modeling tool for live operational testing or survivability evaluations. Efforts are also ongoing within the Army to gain a real-time casualty assessment capability, which will be critical to adequate IOT&E.